

A new genus and species of lizard (Squamata, Scincidae) from New Caledonia, Southwest Pacific

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ABSTRACT

A new genus and species of skink, *Lacertoides pardalis*, is described from two specimens collected in southern New Caledonia in the southwest Pacific. This species is a member of the *Eugongylus* group, but is not readily assignable to any known genus. The most notable of its several derived characteristics is the extraordinarily large number of small body scales.

RÉSUMÉ

Un nouveau genre et une nouvelle espèce de scinque, *Lacertoides pardalis*, sont décrits sur deux spécimens récoltés dans le sud de la Nouvelle-Calédonie, sud-ouest du Pacifique. L'espèce appartient au groupe *Eugongylus*, mais ne se place aisément dans aucun genre connu. Parmi plusieurs caractères dérivés, le plus remarquable est le nombre extraordinairement élevé de petites écailles corporelles.

Although there is now considerable support for the monophyly of the *Eugongylus* group (GREER, 1979) of lygosomine skinks (GREER, 1974, 1979, 1989, 1990; HUTCHINSON, 1980, 1993; HUTCHINSON & DONNELLAN, 1993), the relationships of the genera within this group remain poorly

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resolved. Clades composed of several genera have been recognized on the basis of single synapomorphies: the beta palate (GREER, 1974) and fusion of the hemilaminae with the body of the atlas (GREER, 1989; the *Pseudemoia* group). The Australian content of the latter, more inclusive group was identified by GREER (1989), although he also included in the group unspecified New Caledonian and New Guinean taxa. The New Caledonian members of the group are (GREER, pers. comm.), *Caledoniscincus*, *Graciliscincus*, *Nannoscincus*, and *Sigaloseps*.

Immunological studies by HUTCHINSON *et al.* (1990) aimed at elucidating relationships of the Australian members then assigned to the genus *Leiopisma*, provided some support for the monophyletic nature of the *Pseudemoia* group in Australia. However this scheme of relationships differed from GREER's in the inclusion of two genera (*Bassinia* and *Morethia*) and some species of *Niveoscincus* not possessing the synapomorphy of fusion of the hemilaminae to the body of the atlas, and also in the exclusion of non-Australian taxa from the *Pseudemoia* group.

The clades and immunological groups identified by these characters, although not completely nested, at least provide some argument for special relationships among part of the *Eugongylus* group. Further, the genera within these clades are mostly polytypic and diagnosable by synapomorphies.

However, the residual genera, which in the Pacific Basin consist of *Cyclodina*, *Emoia*, *Eugongylus*, *Geoscincus*, *Marmorosphax*, *Lioscincus* (the residual New Caledonian species formerly referred to «*Leiopisma*»), *Oligosoma*, *Phoboscincus*, *Tachygyia*, and *Tropidoscincus*, are either undiagnosed by synapomorphies, are very small groups (1-2 species) of unknown affinities, or both..

The new skink described herein falls among this residue in lacking a beta palate and having atlantal hemilaminae distinct from body, but its relationships remain otherwise obscure. It does not readily fit within the morphotypes characteristic of any of the non-diagnosable genera, does not possess the synapomorphies of the diagnosable genera, yet possesses some apomorphic traits rare among skinks. Hence, it is here described as a new genus.

SYSTEMATICS & BIOLOGY

LACERTOIDES gen. nov.

Type species: *Lacertoides pardalis* n. sp., here designated.

Diagnosis: *Lacertoides* is identified as a member of the *Eugongylus* group of skinks (GREER, 1979; HUTCHINSON, 1993) by possessing the following suite of synapomorphies: parietals meet behind interparietal; parietal bordered along lateral edge by a single temporal; presacral vertebrae > 26; Meckel's groove closed.

Lacertoides can be further differentiated from the *Sphenomorphus* group (GREER, 1979) by lacking the derived state of medial preanal scales enlarged and overlapping the adjacent lateral preanal scales (GREER, 1979; 1990).

GREER (1979) identified a single row of scales on the dorsal surface of fourth toe throughout its length and 11 or more premaxillary teeth as further synapomorphies for the *Eugongylus* group. *Lacertoides* lacks both states, having the basal five or six dorsal scales of fourth toe divided, and nine premaxillary teeth. Whether these represent retained primitive states or reversals is unknown in the absence of knowledge of its relationships within the group.

Within the *Eugongylus* group, *Lacertoides* possesses the following suite of derived character states: very small body scales (midbody scale rows 68 or >); complete row of subocular scales; nuchals fragmented; frontoparietals fused; lower eyelid with a semi-transparent disc; presacral vertebrae 29.

Of these features, only the *Emoia adspersa* group (as defined by BROWN, 1991), *Tachygyia* Mittleman, *Phoboscincus bocourti* (Brocchi), and *Oligosoma otagoense* (McCann) have small body

scales (> 55 rows around the body; GREER, 1976; HARDY, 1977; BROWN, 1991). The first three taxa also have fused frontoparietals. *Tachygia* further shares a complete row of subocular scales, while *P. bocourti* also shares fragmented nuchals and an elevated number of presacral vertebrae (30). However, *Tachygia* and *P. bocourti* both have scaled lower eyelids, while *Tachygia* also retains the primitive number of presacral vertebrae (27) for the *Eugongylus* group.

Derivatio nominis: the generic name alludes to the superficial resemblance to some lizards of the genus *Lacerta* (family Lacertidae), due to the combination of large head shields, small body scales, and ocellated color pattern. The gender is masculine (Article 30(b) of the Code of Zoological Nomenclature).

Lacertoides pardalis n. sp.

(Figs 1-2)

Type material: holotype ♀, Australian Museum Sydney (AMS) R148050 (R. SADLIER & G. SHEA), lower slopes of Kwa Neie, 28.IX.1995. Paratype MNHN 1996.2662, same collection data as holotype.

Diagnosis: species diagnosis same as for genus.

Description: *measurements:* snout to vent length (SVL) 102 mm (holotype), 75 mm (paratype); distance from axilla to groin 54.7-56.9% of SVL; distance from forelimb to snout 38.2-40.0% of SVL; hindlimb length 49.0-50.7% of SVL.

Scalation: definitions follow SADLER (1986). Frontonasal as broad as long (W/L = 95.0-114.9%); prefrontals moderately large, narrowly separated to narrowly contacting; frontal longer than wide (W/L = 79.7-83.3%); frontoparietals fused; interparietal distinct; parietals each bordered by two or three small scales and a single upper secondary temporal scale; primary temporal usually fragmented to form two near equal sized scales (R148050 right single); upper secondary temporal single; lower secondary temporals usually single (R148050 left divided into two); tertiary temporals usually two; postlabials three, two small scales lowermost and a single large scale uppermost.

Nasals moderately large, each usually with a postnasal suture (R148051 right side crease only) and usually bordered above by a distinct supranasal scale (R148050 right supranasal fused to nasal); loreals two; upper and lower preocular present; complete subocular row of scales; supraciliaries 7-8; upper labials eight; lower labials 7-9; postmental contacting first two on each side; enlarged pairs of chinshields three, first pair in broad contact, second pair separated by two scales, third pair separated by five scales, all chinshields contacting lower labials.

Lower eyelid with an obvious, centrally located semi-transparent disc, length approximately 30% of total eye length.

Ear opening moderately large and with 4-5 lobules.

Body scales smooth, midbody scale rows approximately

68-70; paravertebral scales (from parietals to opposite vent) 148-157.

Scales on top of fourth finger 16-17; lamellae beneath fourth finger 19-22; scales on top of fourth toe 23-25, basal 5-7 divided; lamellae beneath fourth toe 32-33, broad and smooth.

Dentition (holotype only): premaxillary teeth 9; maxillary teeth 17-18; dentary teeth 20-21. Teeth peg-like.

Osteology: presacral vertebrae 29; postsacral vertebrae 61 (holotype); phalangeal formula for manus and pes 2.3.4.5.3 and 2.3.4.5.4 respectively; pairs of mesosternal ribs contacting mesosternum two. No ectopterygoid process.

Color and pattern: dorsal surface featuring a pattern of dull, pale, olive-grey, dark centered ocelli on a darker olive-grey background between the fore and hindlimbs. This pattern becomes obscure anteriorly and tends to blend, becoming midbrown marked with pale longitudinal spots (the remnants of the pale rings) at the nape and head. On the side of the body the dorsal pattern continues but progressively breaks up ventrally, merging with the ventral pattern along the ventrolateral margin. Posteriorly, around the level of the hindlimbs, both the pale ocelli and dark ground color merge and are gradually replaced by a regular pattern of alternating broad dark (2-3 scales width) and narrow pale (1-1.5 scales width) crossbars along the length of the tail. Ventral surface white with a pattern of narrow (approximately 2 scales width) reticulate markings over the entire ventral surface of the body, obscure (basally) to absent (distally) below the tail. Soles of feet and hands dark, finger and toe lamellae dark.

Tongue (in preservative) grey distally, pale basally. Peritoneum dark.

Type locality: Kwa Neie.

Distribution and habitat: both specimens were collected from beneath large rocks embedded in a soil matrix, exposed in a road cutting on the lower slopes of Kwa Neie (Figs 3-4), a tall hill (summit 367 m above sea level) in the far south of the island. The surrounding habitat was low maquis on red lateritic soils with numerous low rock outcroppings. The holotype was observed active in overcast conditions retreating from the top of a large rock to a crevice and burrow beneath from which it was

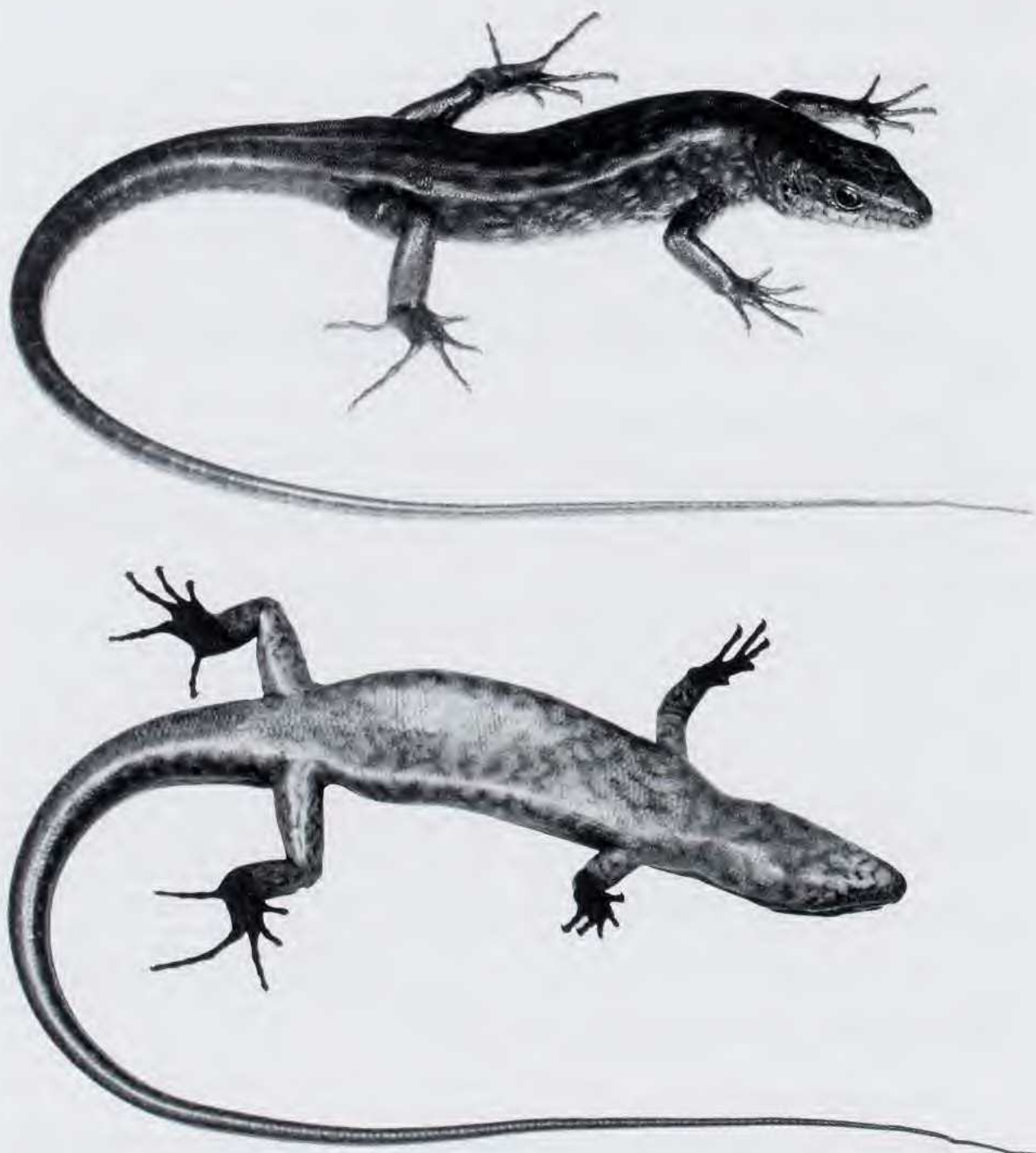


FIG. 1. — Holotype (upper) of *Lacertoides pardalis* n. sp. (AMS 148050), showing dark ventral markings (lower).

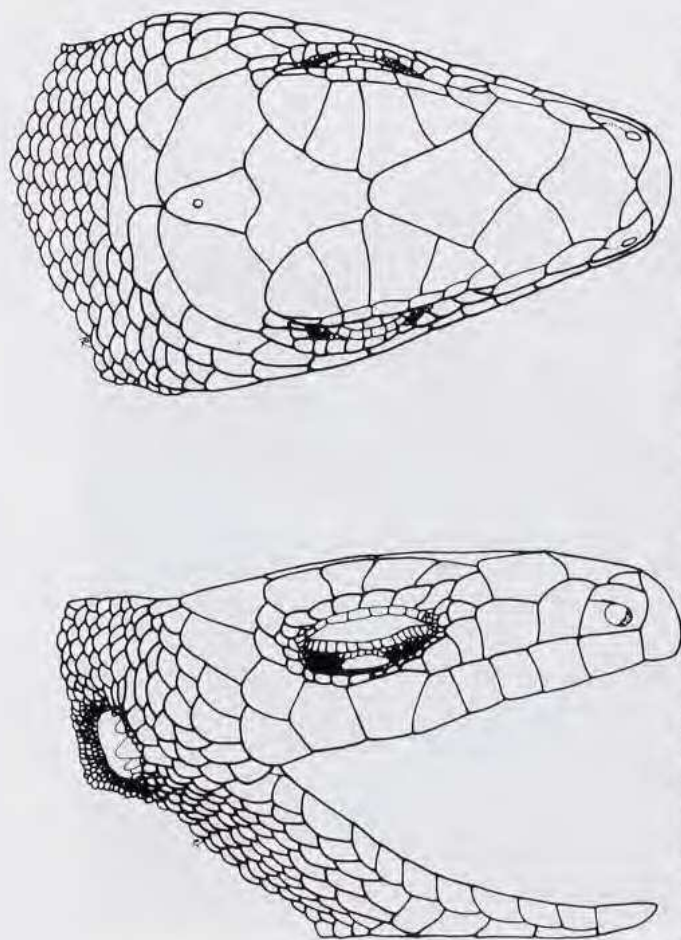


FIG. 2. — Lateral and dorsal view of the head of *Lacertoides pardalis* n. sp. (AMS 148050).

Plaine des Lacs. Kwa Neie is part of a relatively small (approximately 5 km length) and apparently isolated north-south running range in the far south of the island. At this stage it is unknown whether *Lacertoides pardalis* is restricted to the range on which Kwa Neie is situated or whether it also occurs in similar rocky habitat in the region. Either way it is likely to have one of the more restricted distributions of the New Caledonian skink fauna.

On the information presently available we consider *Lacertoides pardalis* is uncommon with a potentially limited distribution. The general area from which the species is known has been exploited for minerals in past, and is likely to be considered for mining in the future. Field research to determine the distribution, habitat requirements, and relative abundance of the species is required before an assessment of its present status and the likely impact of future development in the region can be made.

Derivatio nominis: the species epithet is from the Latin *pardalis*, a leopard, alluding to the ocellated color pattern. It is a noun in apposition.

dug out. The paratype was observed at the entrance of a burrow/crevice beneath a large rock in the face of the cutting. The tail of a third individual was observed in a crevice beneath rocks on the face of the cutting where it passed through closed forest approaching the upper slopes of the mountain.

Locally sympatric skink species in rainforest habitat of the general area include the crepuscular species *Marmorosphax tricolor* and *Sigaloseps deplanchei*, and the diurnal surface active species *Caledoniscincus austrocaledonicus*, *Caledoniscincus atropunctatus*, and *Tropidoscincus rohssii*. The maquis habitat of the type locality was not generally collected but is likely to contain at the very least *Caledoniscincus austrocaledonicus*.

Discussion: the area from which *Lacertoides pardalis* was collected has only received very superficial attention from herpetologists. As far as we are aware the only herpetologists to previously visit the general area and collect specimens were BAUER and WISHMEYER in 1985, who made a small collection from mainly rainforest habitat near the base of Kwa Neie. This collection also contains most of the sympatric species listed above and does not add to that list. Even less field research has been undertaken in the maquis habitat of the Plaine des Lacs region.

From the limited observations we were able to make on the new species it appears to show a degree of dependance on rock outcrops or their equivalent for sheltering sites. Such habitat was generally confined to the dry ranges of the

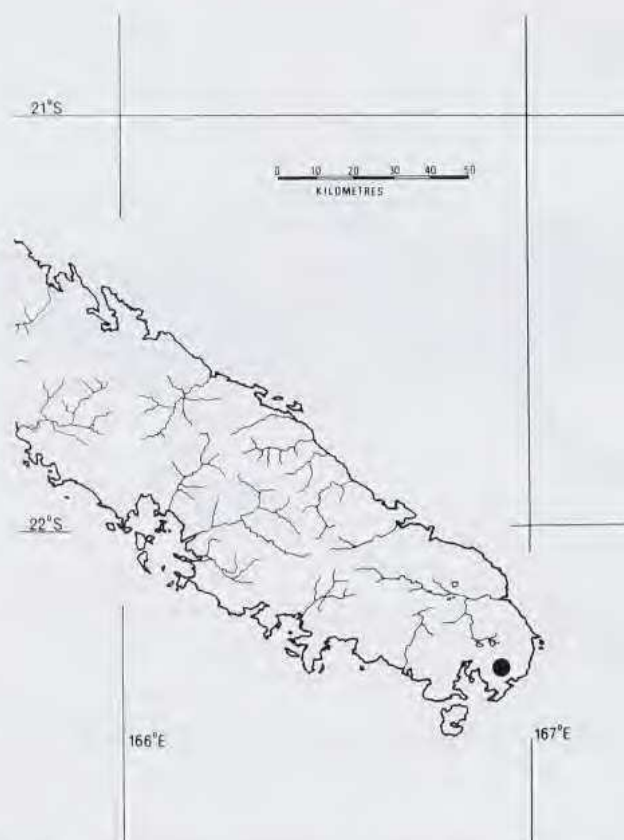


FIG. 3. — Type locality of *Lacertoides pardalis* n. sp. (closed circle) in southern New Caledonia.

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FIG. 4. — Habitat at the type locality for *Lacertoides pardalis* n. sp., a road cutting through maquis on the lower slopes of Kwa Neie.

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